

## CLAIMS

1. A femoral insert for implantation into an intermedullary canal of a femur, comprising:

a member having a lateral surface and a spaced and opposed medial surface;

wherein the lateral surface of the member has a first radius and the medial surface of the member has a second radius;

wherein the lateral surface is adapted to engage at least a portion of a lateral surface of the intermedullary canal and the medial surface is adapted to engage at least a portion of a medial surface of the intermedullary canal; and

wherein the first radius of the lateral surface of the member is equal to or substantially equal to the second radius of the medial surface of the member.

2. The invention according to Claim 1, wherein the member is comprised of a biocompatible material.

3. The invention according to Claim 1, wherein the member further includes a proximal portion and a distal portion.

4. The invention according to Claim 3, wherein the lateral and medial radii surfaces of the member extend along the proximal and distal portions.

5. The invention according to Claim 3, wherein the radii of the lateral and medial surfaces of the member substantially converge along the distal portion so as to form a substantially arcuate configuration tangential to the proximal portion.

6. The invention according to Claim 3, wherein the insert tapers from the proximal to distal section in the anterior/posterior plane.

7. The invention according to Claim 3, further comprising bilateral raised members adjacent to and contiguous with at least a portion of the lateral surface of the proximal portion.

8. The invention according to Claim 7, wherein the radii of the bilateral raised members are constant over the proximal section and then decrease starting at approximately midway between the proximal and distal segment towards the distal portion.

9. The invention according to Claim 7, wherein the radii of the bilateral raised members decrease as the bilateral raised members extend from the proximal portion towards the distal portion.

10. The invention according to Claim 7, wherein the bilateral raised members function as anti-rotation devices.

11. The invention according to Claim 3, further comprising bilateral raised members adjacent to and contiguous with the substantially entire lateral surface of the proximal portion.

12. The invention according to Claim 9, wherein the radii of the bilateral raised members decrease as the bilateral raised members extend from the proximal portion towards a point about midway between the proximal portion and the distal portion.

13. The invention according to Claim 9, wherein the bilateral raised members are configured to prevent rotation of the femoral insert within the intermedullary canal.

14. The invention according to Claim 1, wherein the member is a stem portion of the femoral insert.

15. The invention according to Claim 12, further comprising a trunion portion adjacent to and contiguous with the stem portion.

16. The invention according to Claim 12, comprising a porous coating configured to enhance fixation.

17. A femoral insert for implantation into an intermedullary canal of a femur, comprising:

a member having a proximal portion and a distal portion;

wherein the member has a lateral surface and a spaced and opposed medial surface extending along the proximal and distal portions;

wherein the lateral surface of the member has a first radius and the medial surface of the member has a second radius;

wherein the lateral surface is adapted to engage at least a portion of a lateral surface of the intermedullary canal and the medial surface is adapted to engage at least a portion of a medial surface of the intermedullary canal;

wherein the first radius of the lateral surface of the member is substantially equal to the second radius of the medial surface of the member; and

wherein the radii of the lateral surface and the medial surface substantially converge along the distal portion so as to form a substantially arcuate configuration tangential to the proximal portion.

18. The invention according to Claim 17, wherein the member is comprised of a biocompatible material.

19. The invention according to Claim 17, further comprising bilateral raised members adjacent to and contiguous with at least a portion of the lateral surface of the proximal portion.

20. The invention according to Claim 19, wherein the radii of the bilateral raised members decrease as the bilateral raised members extend from the proximal portion towards the distal portion.

21. The invention according to Claim 19, wherein the bilateral raised members function as anti-rotation devices.

22. The invention according to Claim 17, further comprising bilateral raised members adjacent to and contiguous with the substantially entire lateral surface of the proximal portion.

23. The invention according to Claim 22, wherein the radii of the bilateral raised members decrease as the bilateral raised members extend from the proximal portion towards a point about midway between the proximal portion and the distal portion.

24. The invention according to Claim 22, wherein the bilateral raised members function as anti-rotation devices.

25. The invention according to Claim 17, wherein the member is a stem portion of the femoral insert.

26. The invention according to Claim 25, further comprising a trunion portion adjacent to and contiguous with the stem portion.

27. A femoral insert for implantation into an intermedullary canal of a femur, comprising:

a member having a proximal portion and a distal portion;

wherein the member has a lateral surface and a spaced and opposed medial surface extending along the proximal and distal portions;

wherein the lateral surface of the member has a first radius and the medial surface of the member has a second radius;

wherein the lateral surface is adapted to engage at least a portion of a lateral surface of the intermedullary canal and the medial surface is adapted to engage at least a portion of a medial surface of the intermedullary canal;

wherein the first radius of the lateral surface of the member is substantially equal to the second radius of the medial surface of the member;

wherein the radii of the lateral surface and the medial surface substantially converge along the distal portion so as to form a substantially arcuate configuration that is tangential to the proximal portion; and

bilateral raised members adjacent to and contiguous with at least a portion of the lateral surface of the proximal portion; and

wherein the radii of the bilateral raised members decrease as the bilateral raised members extend from the proximal portion towards the distal portion.



28. The invention according to Claim 27, wherein the bilateral raised members function as anti-rotation devices.

29. The invention according to Claim 27, wherein the member is a stem portion of the femoral insert.

30. The invention according to Claim 29, further comprising a trunion portion adjacent to and contiguous with the stem portion.

31. A method of implanting a femoral insert into an intermedullary canal of a femur, comprising:

resecting the femur head;

removing a sufficient amount of bone tissue adjacent to the femoral neck and intermedullary canal such that at least a portion of the femoral insert is capable of being received into the intermedullary canal; and

only removing bone from the direction where the femoral head is removed and not by placing a reamer or broach axially down the intramedullary canal parallel to the greater trochanter;

placing at least a portion of the femoral insert into the intermedullary canal;

wherein the femoral insert comprises a member having a lateral surface and a spaced and opposed medial surface;

wherein the lateral surface of the member has a first radius and the medial surface of the member has a second radius;

wherein the lateral surface is adapted to engage at least a portion of a lateral surface of the intermedullary canal and the medial surface is adapted to engage at least a portion of a medial surface of the intermedullary canal; and

wherein the first radius of the lateral surface of the member is substantially equal to the second radius of the medial surface of the member.